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VETERINARY JOURNAL

Editor :
FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.,
HONORARY VETERINARY SURGEON TO HIS MAJESTY THE KING.
OFFICIER DU MERITE AGRICOLE (FRANCE).
CAVALIERE DEI S. S. MAURIZIO E LAZZARO (ITALY).
HONORARY MEMBER OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.
AND FORMERLY PROFESSOR IN THE ROYAL VETERINARY COLLEGE, LONDON.

Sub-Editor :
GLADSTONE MAYALL, M.R.C.V.S.

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Editorials.

THE STUDENT AND PRACTICAL PUPILAGE.

THE time has arrived when the aspiring graduate will temporarily leave his college theories and seek to spend his well-earned vacation somehow and somewhere. The wise one will have his arrangements already made to get at once amongst his future patients and put into practice (and make observations on) what he has been taught and been endeavouring to get his brain to absorb ; but the others, the foolish virgins, will have no oil in their lamps, and will put their holidays to no practical purpose ; with the result that at the inevitable, and inexorable, test (known as the Examination) they will *talk* like parrots but *do* nothing. Such men have no excuse for being plucked, for to allow them to be foisted on the general public as " Qualified to practise the science and art of Veterinary Medicine and Surgery " would be an act of cruelty to their future patients, dishonesty to the stockowner, and unfairness to themselves.

It is rubbish to reason from analogy with human medical methods here. The medical student is with his future patients every day and every moment of the day. He has been brought up with them from babyhood and at all events has some knowledge of their habits and daily hygiene ; whereas the average veterinary student of to-day, unlike those of the past generation who entered because they had sporting instincts and could not keep away from animals, comes straight from school to college, with no practical knowledge of the habits, dietary, and other essentials of hygiene of the animals he hopes to make his patients—unable to ride, knowing nothing of farm animals, and often with a parent or guardian who expects the whole of the college fees to inclusively provide the wherewithal to turn him out a practical and useful man.

Compulsory pupilage *may* be a mistake—that is a matter of opinion —but the practitioner knows who is the man to select as his future assistant *and the verdict goes every time for the man who has seen practice.*

To succeed as a practitioner, the student " who has seen practice " *in his receptive years* has no rival in the man who has omitted this essential detail, *and to waste the college vacations is to lose time which can never be regained.* Even to the man who selects a laboratory career for his future sphere of action, it is essential that he shall be well acquainted with the normal habits of his patients. The old days of heavy premiums and long pupilage before going to college have disappeared, the extended curriculum and heavy cost of living having finished them, but six months with a practitioner, or on a stock farm, before entering college, and a further twelve months during the college vacations, would do much to remove the constantly reiterated reproach that many of the newly-fledged graduates of to-day are lamentably deficient in practical knowledge and the common, everyday, tact which is so essential to build up and retain a successful *clientèle.* Practitioners are to be found who will take willing pupils on certain terms, and mutually advantageous terms, too, and the payments made are infinitely less in proportion than those of other learned professions. but for the pupil to expect to be paid for his services before he has proved his value is an absurdity which can only lead to misunderstanding and waste of time and argument. Each must give and take, and a mutual understanding in this matter will do much to remove the reproach so often levelled nowadays against our younger graduates that their practical knowledge is so lamentably deficient.

DISEASES AFFECTING MAN AND BEAST.

" Surely the time is overdue for greater collaboration between the practitioners of human and veterinary medicine " is a quotation taken from an article written in a recent number of *The Field,* and the fact that it is made by so prominent a sporting and agricultural paper is additional evidence in support of what has on many occasions been advocated in our columns.

The day of the " watertight compartment " method of working against disease is past, and it is, as our contemporary says, by " greater collaboration between the practitioners of human and veterinary medicine " that we shall, in the future, make more effectual and rapid progress in the fight against disease ; and we in the veterinary profession must be prepared for it.

The main future of the two professions and the outlets for our younger graduates will not lie in the mere doctoring of sick animals so much as in the prevention of disease ; and it is only the question of finance which is postponing the establishment of a Veterinary Public Health Service on similar lines, though necessarily not on quite such an elaborate scale, as the Public Health Service already established for human beings. To have the one without the other is to have a thing which is obviously incomplete, for the two are indissolubly

connected ; and the chain will never be linked up completely until there is a properly constituted Veterinary Health Service, with whole-time veterinary officials in every county, to work hand in hand with the Medical Officers of Health for the control and eradication of communicable and analogous diseases.

Each branch is a speciality in itself, and it stands to reason that in such diseases as Tuberculosis, Anthrax, Glanders, Rabies, and numerous others, the specialist on the human side must adhere to his job and collaborate with (not control) the specialist on the animals. Each requires special knowledge, and the best and broadest-minded men in each profession have admitted this for years. Finance and the question of efficient salaries hold the scheme up for the moment, but when a little more time has elapsed beyond the termination of the war, and England has righted herself, the communicable diseases of animals question (especially as regards Tuberculosis and Milk) will crop up again and the veterinary official will be required.

It is for us to see that we are ready, for our Council to see that our Examination Syllabus is kept up to the proper standard, and for our colleges to maintain their teaching efficiency. The question of University and higher education as the minimum standard for entrance into all the learned professions has already been raised, and our profession must fall into line, not forgetting that for the proper study of animal life and animal habits a student must be about amongst them, particularly during the receptive years of his life—in other words, he should spend his vacation time at least either on a farm or with a veterinary surgeon in active practice.

THE RECENT OUTBREAK OF RABIES.

THE stupidity of those who smuggle dogs into a country from which rabies has been eradicated is criminal and should be treated as such, with the fullest penalty the law permits.

After a struggle of nearly three years rabies had again been got rid of by the ceaseless efforts of the veterinary advisers of the Ministry of Agriculture ; and now that another case has been discovered, and this in a puppy only seven months old, it proves that the infection must have been conveyed either by a dog illegally imported from abroad or by an intermediate case of local origin which was not reported to the Ministry.

In any case, someone was wilfully to blame, and the veterinary officers of the Ministry have the whole-hearted support and good wishes of their colleagues in their efforts to discover the criminal lunatic whose thoughtless action has put the whole nation to additional risk, expense, and trouble.

XUM

General Articles.

ENCEPHALO-MYELITIS OF RABBITS.

By C. C. TWORT, M.D., *Rose Research Fellow,*
The Pathological Department, St. Bartholomew's Hospital, London, E.C.

During the course of some experiments on lymphadenoma and allied diseases several of the animals succumbed to a peculiar condition in which involvement of the central nervous system was the most obvious pathological finding. A short description of the disease in question may be of some interest in view of the utilisation of rabbits by workers on encephalitis-lethargica, hydrophobia, distemper, etc.

The onset is usually insidious, and the first indication of any trouble is, in most cases, wasting of the animal. The temperature is at times markedly sub-normal, 97·4° F. and 97·7° F. in two cases, and the hair may fall out in patches. There may be some discharge from the eyes, without much inflammation, and in no case has paralysis of eye muscles been noted; indeed, there is a complete absence of any paralytic phenomena. As the disease progresses emaciation becomes profound, although the appetite seems pretty good; there is great muscular weakness, and convulsions may occur. In two cases the tongue has been severely bitten, presumably during a convulsion, but there remains practically nothing to indicate disease of the central nervous system. Death takes place during a convulsion, which may or may not have been preceded by a short period of coma; or it may take place in coma. The length of time for which an animal may survive after the first symptoms have been noted has varied from fifteen hours to several days. It appears that complete recovery may occasionally take place, favourable signs being a rise of temperature, an increase in weight and renewal of hair.

Pathological changes are almost confined to the central nervous system. Apart from the nervous system, with the exception of the great wasting and perhaps a terminal diarrhœa or congestion of the lungs, there is nothing to indicate the nature of the cause of death on microscopical examination. The cerebro-spinal fluid may vary from normal to a high degree of turbidity, with rapid clotting, but cultures of the fluid and of the blood remain sterile. The most that is found on naked-eye examination of the brain and cord is a certain amount of congestion, and usually this is not evident, while hæmorrhages have in no case been observed.

On microscopical examination the cerebro-spinal fluid shows a more or less pronounced mononucleosis. Lesions may be found in the whole length of the central nervous system, but they are usually most marked in sections made at the level of the corpora quadrigemina

and the neighbouring parts. Extensive disease in the cerebral cortex and the cord have only been observed in one case, while affection of the meninges is but slight or undemonstrable. The histological picture resembles that found in diseases of the central nervous system due to filtrable viruses, the lesions sometimes being very slight. A typical case shows congestion and small hæmorrhages, perivascular infiltration of small round cells with foci and scattered cells of a similar nature, chromatolysis and neuronophagie. A few polynuclear and large mononuclear cells are usually intermixed with the small round cells. Nephritis, hepatitis and splenitis may be observed.

A table of the animals under observation since the primary case occurred is given below. The table will, perhaps, be rendered a little more intelligible if a few remarks on the animals are first given. Rabbit No. 10 and her four young, Nos. 26 to 29, were kept in the same cage during the whole course of the experiments. Rabbits Nos. 21, 23 and 30 were in the cage adjoining, while No. 24 was removed some little distance from the latter, being kept on a table. No. 24 at no time came into contact with any of the other animals, the cages of which were on the floor of the animal house. The litter of eight young rabbits, Nos. 38 to 45, with their mother, were removed to the cage formerly occupied by rabbit No. 10 and her litter on about March 1, 1922. The litter of ten young rabbits, Nos. 47 to 56, were in close proximity to Nos. 38 to 45. About a dozen other adult rabbits were also kept in the same house, as well as guinea-pigs and mice.

TABLE.

R. 10 † ... R. 37 *h.*				
R. 26. C.N.S. not examined.				
R. 27 †			R. 23 *	
R. 28 ill, but recovered.			R. 21 *	
R. 29 † ... R. 31 † ...	R. 47 *h.*		R. 30 *h.*	
	R. 48 *h.*		R. 32 ill.	
	R. 51 C *		R. 33 † ...	R. 49 *h.*
	R. 52 C †			R. 50 *h.*
	R. 53 C †			R. 54 C †
				R. 55 C *h.*
				R. 56 C. C.N.S. not examined
R. 34 *h.*			R. 35 *h.*	
R. 36 *h.*			R. 41 †	
R. 43 *h.*			R. 45 C *	
R. 44 *h.*				
R. 24 † ... R. 46 *h.*				

†=Well-marked lesions. *h*=Healthy.
*=Doubtful lesions. C=Control, uninoculated.

From the above table it will be seen that, altogether, ten animals have shown typical lesions. Three of these were uninoculated, a very significant fact in view of the difficulty of obtaining cage infection with diseases of a similar nature. Also the animals in the first column are the original spontaneous cases, and had only been inoculated with

lymphadenomatous and leucæmic material. Thus there only remain the three animals, Nos. 31, 33 and 41, which can be considered as possibly true transmissions of the disease by the injection of fresh or glycerinated nervous tissue, leaving out of account cases in which the lesions found were too insignificant to warrant a definite diagnosis. If the last three animals were not cage infection cases the incubation period was from 1½ to 3 months, a rather unusual length of time, especially as in R. 31 and 33 the injections were made directly into the cranial cavity. In any case, it would seem that transmission of the disease from one animal to another by subcutaneous, intraperitoneal and intracerebral inoculation offers considerable difficulty; whether it will remain so after passages have been multiplied is an open question, but it is probable that by carrying from animal to animal the virulence of the virus will be exalted.

As has been mentioned, the histological lesions to be seen are often very slight, which is not to be wondered at in view of the vital parts affected. Certainly, with a cursory examination the condition could easily be missed. Scattered round cells and even small groups of them are met with in the nervous systems of normal rabbits, which renders the diagnosis of early lesions difficult. The most extensive disease was found in R. 24, 27, 29, 31 and 41. It is probable that lesions would have been demonstrable in the nervous system of R. 26 had it been subjected to examination, and that R. 28 has suffered from the disease, but has recovered. A more detailed examination of the central nervous systems of the doubtful animals might lead to the discovery of extensive foci of disease; on the other hand, a very large number of sections have already been thoroughly searched. In the case of R. 10 one was fortunate to hit upon the classical lesions in a fairly advanced state in a single section made at the level of the superior corpora quadrigemina.

The nature of the condition is evidently similar to that of the filter-passing group of diseases comprising encephalitis-lethargica, anterior poliomyelitis, hydrophobia, distemper, etc. A condition similar to anterior poliomyelitis of man has been described in guinea-pigs, etc., but I am not aware of any publication relating to such a disease in rabbits.* The disease in the rabbits under discussion appears to resemble more closely encephalitis-lethargica than it resembles any of the other related conditions, but there are many obvious differences both clinically and pathologically. Unfortunately the sympathetic ganglia were not examined in any of the animals.

In my opinion it is highly improbable that the subcutaneous injections of the diseased lymphatic glands, etc., to which the original

*Oliver, J. Jour. Infect Diseases, 1922, v. 30, p. 91.

animals were subjected had anything to do with the condition. Although fowl leucæmias are said to be due to a filter-passing virus, we have no evidence of the action of such a virus in the human group of diseases which bear the same name, and even with the assumption that the virus is present it requires considerable imagination to believe that in the rabbit it would forsake the blood and the blood-forming organs for the central nervous system, despite the remarkable susceptibility of the nervous system of rabbits for some of the members of this group of viruses. It is probable that we are dealing with a spontaneous encephalo-myelitis, possibly specific for rabbits, and which has, up to the present, not shown itself with certainty to be transmissible experimentally. Perhaps the most interesting animal is R. 24, which had not been in close contact with any of the other rabbits, and which had, as a matter of fact, been injected about nine months before death with blood from an acute case of myelocytic leucaemia. Here the question of the carrying of the virus by parasitic insects naturally occurs to one. In order to prove definitely that the injections of diseased tissues had nothing to do with the condition it will obviously be necessary to conduct control experiments in another laboratory, where the animals would be removed from any chance of their being infected spontaneously, and the same may be said really with regard to all future experiments. The disease once having become established in the animal house at present utilised, it will, in all probability, be impossible to locate the true etiological factors which come into play unless animals kept in a fresh situation are used.

Needless to say, subsequent experiments will doubtless lead to considerable alteration in the views expressed in this preliminary communication. The classical infection and immunity tests which it is usual to carry out with a virus belonging to this group will, of course, be undertaken to try and prove its identity or otherwise with the related, filter-passing, casual agents of recognised specific diseases.

STUDIES ON THE USE OF ANTHELMINTICS IN FOWLS.*

By A. B. WICKWARE,
Animal Pathologist, Health of Animals Branch
Co-operating with the Poultry Division, Dominion Experimental Farms,
Ottawa, Canada.

THE past two or three years have been marked by a revival of parasitological studies, dealing particularly with the parasites of domestic animals, and it is only natural that their generic re-classification and revision of nomenclature should be followed by investigations into the life histories of many helminths and as a sequence a

* Abstract from the *Journal* of the American Veterinary Medical Association, September, 1921.

determination made of the comparative anthelmintic value of the various drugs recommended as specifics. Previous to that time it was taken for granted that certain preparations were very efficient, and this assumption was largely based upon traditional beliefs, fostered from year to year by various publications which were, in the main, compilations.

It is only reasonable to expect, and naturally so, that during this recent revival the larger breeds of domestic animals such as the horse, cow, pig, sheep, etc., should receive the major portion of attention, as their greater economic value clearly indicated such a course. Lately, however, more attention has been given to intestinal helminthiasis of fowls, and much commendable work has been done on the life histories of nematodes and cestodes and the efficacy of anthelmintics in the eradication of these parasites.

Guberlet (2) has carried on a special investigation of the life histories of various types of American tapeworms of fowls, embracing studies of the transmission and prevention of cestode infection in chickens. He has reported very favourable results following the administration of concentrated lye in the feed.

Hall (5) has expended considerable effort on a determination of the anthelmintic value of various tænicides in the treatment of infested animals, many contributions on the subject appearing in the various scientific journals.

Salmon (9), in his bulletin on " The Diseases of Poultry," says :—

" One of the best methods of treating tapeworms in fowls is to mix in the feed a teaspoonful of powdered pomegranate root bark for every 50 head of birds. In treating a few birds at a time it is well to follow this medicine with a purgative dose of castor oil (2 or 3 teaspoonfuls). According to Zurn, powdered areca nut is the best tapeworm remedy for fowls, but he states that turkeys are unfavourably affected by it. It may be given in doses of 30 to 45 grains mixed with butter and made into pills. Male fern is also a very effective remedy and may be used in the form of a powder (dose 30 grains to 1 drachm) or of liquid extract (dose 15 to 30 drops)."

Gage and Opperman (1) advocate the use of turpentine and Epsom salts and have found this a very effective remedy in nodular tæniasis.

Neumann (7), quoting from Zurn and others, recommends the various drugs mentioned in the quotation from Salmon.

Pearl, Surface and Curtis (8) likewise recommend similar treatments to those outlined by Salmon.

Gallagher and Foster (3) recommend oil of chenopodium, 10 to 12 drops given in a teaspoonful of castor oil.

Gallagher and Ward (4), quoting from various references, specify such drugs as pomegranate root bark, male fern, areca nut, etc.

Kaupp (6) recommends the same treatments as indicated above, with the addition of thymol.

Ransom (10), in the Bureau of Animal Industry Report for 1904, mentions various drugs, including most of those already listed in the foregoing paragraphs.

For years our Department had been advocating the use of pomegranate root bark, 1 teaspoonful for every 50 birds, our advocacy being based upon the recommendations contained in the various works then available. Little attention was paid to the ultimate results, as it was rarely possible to supervise the treatment or obtain statistics relative to its efficacy. Occasionally a report of improvement would be recorded, but this apparent improvement was judged by the general appearance of the fowls and the fact that they seemed to be picking up. We venture to assert that the noticeable improvement was dependent, in the majority of cases, upon the precautionary measures taken to prevent reinfection.

With a knowledge of the unsatisfactory status of the remedies, and the lack of definite statistics for comparison, it was decided to undertake at the first opportunity a study of the various drugs recommended. This opportunity came during an outbreak amongst the fowls on the Experimental Farm, Ottawa, when the young stock became heavily parasitised and a number of deaths followed a gross infestation with tapeworms.

A number of cockerels, pullets and capons were selected for experimentation, and divided into separate lots. These birds were decidedly unthrifty and showed all the symptoms of fowls harbouring parasites.

Although a number of autopsies had previously been made, to be absolutely sure that we were dealing with cases of internal parasitism two fowls from the experimental flock were killed and opened to determine the degree of infestation and the species of worms present. In both these birds the small intestines were thickened and inflamed, showing evidence of a catarrhal enteritis, and in the duodenum hundreds of tapeworms of almost microscopic size (*Davanea proglottina*) were noted. The small intestines also contained large numbers of *Choanotaenia infundibuliformis* and one or two large nematodes (*Heterakis perspicillum*). In the ceca dozens of small nematodes (*Heterakis papillosa*) were observed. Besides the species above noted, a number of threadworms (*Capillaria retusum*) were demonstrated.

Discussion of Results.

The results of the various treatments and our ultimate conclusions may be subject to criticism in that the results are not worked out on

SUMMARY OF ANTHELMINTIC TREATMNETS.

Exp No.	Drugs and Chemicals Used.	Dose.	Number of Trtmts.	Number of Fowls Treated.	Number of Fowls autopsied.	Results.
1	Pomegranate root bark	1½ grains	One	1 pullet	1 pullet	Numerous active tapeworms present
2	Do.	1½ grains	One	15 cockerels and capons	1 capon	Do.
3	Do.	3 grains	One	15 cockerels and capons	1 capon	Do., also threadworms (*Capillaria*)
4	Do.	3 grains	Two	1 capon	1 capon	Numerous active tapeworms present
5	Do.	3 grains	One	1 pullet	1 pullet	Fair number of active tapeworms
6	Do.	4½ grains	One	1 pullet	1 pullet	Numerous active tapeworms present, also thread worms (*Capillaria*)
7	Do.	6 grains	Two	5 capons	2 capons	Numerous active tapeworms present
8	Concentrated lye	1 teaspoonful in 1 gallon of grain	One	4 capons and 8 miscellaneous fowls	1 capon	Fair number of active tapeworms present
9	Do.	Do.	Two	3 capons and 8 miscellaneous fowls	1 pullet	Numerous active tapeworms present
10	Pumpkin seeds	Chopped seeds *ad lib.*	One	4 capons	None	
11	Turpentine	1 teaspoonful	One	4 capons	2 capons	Bird No. 1, numerous active tapeworms present; Bird No. 2, two large inert tapeworms found
12	Areca nut	30 grains	One	3 capons and 2 pullets	1 pullet	Four active tapeworms present
13	Do.	30 grains	Two	2 capons	2 capons	Bird No. 1, no tapeworms found; Bird No. 2, few tapeworms and roundworms present
14	Do.	30 grains	One	4 assorted fowls	1 fowl	Hundreds tapeworms present
15	Do.	60 grains	Two	2 fowls	2 fowls	Both birds showed a fair number of tapeworms
16	Thymol	1 grain	One	4 fowls	1 fowl	Hundreds of active tapeworms present
17	Do.	6 grains	Two	2 fowls	1 fowl	Numerous active tapeworms and one large nematode present
18	Fluid extract of male fern	2 drams	Two	2 fowls	1 fowl	Hundreds of active tapeworms present

a percentage basis of efficiency, but when dealing with cestodes in chickens it must be remembered that many of the types are almost microscopic in size and can only be clearly observed after immersion in tepid water.

Ransom in his treatise on " The Tapeworms of American Chickens and Turkeys " states:—" The diagnosis by hunting in the droppings for segments of the parasite is less satisfactory than would be supposed, for it is not rare to find chickens badly infested with tapeworms when it has been impossible to discover segments in the manure. The method is rendered doubly uncertain because the colour of the segment is about the same as the urine in the feces."

In some cases a careful washing of the droppings was made to determine the percentage of efficiency, but this was subsequently discontinued, as the proglottides of the cestode *Davainea proglottina* were very hard to detect, the worm being very friable and breaking up into separate segments.

The only way one could estimate the numbers of *Davainea proglottina* present would be to employ some device such as a bacterial counter over the open bowl immersed in tepid water or by utilising a warming stage and a square field ocular.

While some of the drugs showed some anthelmintic value, the number of worms found on autopsy discounted their use as effective tænicides in fowls.

The drugs and preparations were freshly procured, which would dispose of any argument relative to their deterioration.

In summing up our experiments the following conclusions appear to be admissible, although a large number of autopsies would have provided more indisputable evidence :

1. Pomegranate root bark cannot be relied upon as an effective tænicide in fowls.

2. Areca nut, making allowance for degrees of infestation, cannot be considered as absolutely reliable, because, although experiments 12 and 13 would indicate a beneficial action, experiments 14 and 15 clearly discount the result.

3. Thymol is apparently inefficient as a tænicide, even when administered in larger doses than usually recommended.

4. Fluid extract of male fern, given in exceedingly large doses, failed to have any effect on the tapeworms present in the intestines.

In regard to the other preparations mentioned, viz., turpentine, concentrated lye, pumpkin seeds, and oil of chenopodium, no expression of opinion is given, as further studies with these remedies are necessary before a definite pronouncement can be made.

Finally, we would like to point out that although the parasites

listed as being present are scientifically designated, the classification, while probably correct, is nevertheless tentative and subject to revision.

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Clinical.

NOTE ON A CASE OF HODGKIN'S DISEASE IN A HORSE.

By H. A. REID, F.R.C.V.S., *Government Veterinary Bacteriologist, New Zealand.*

THE subject, a bay gelding, ten years old, first came under my observation for symptoms of general debility. The animal was in good bodily condition, and the appetite normal, but there was loss of spirits, lassitude, and slight swelling of the dependent parts.

The pulse and temperature were normal.

A dose of physic and complete rest in a good grass paddock were prescribed.

A fortnight later the symptoms had increased. Œdematous swellings involved the prepuce, subcutaneous tissue of the sternum and legs. There was an intermittent cough, discharge from nostrils, and lachrymation. The lymphatic vessels of the hind limbs were distended, and the submaxillary gland tumefied. The clinical symptoms resembled those seen in glanders. This disease, however, does not exist in New Zealand.

There was slight loss of hair from the sides of the body and neck. Temperature 101.5.

Examination of the blood gave a normal hæmoglobin test, red blood cells, normal count without deformation, slight increase in lymphocytes and eosinophiles.

Six weeks later the animal was brought to me in a deplorable condition. Alopecia affected more or less the entire body, apart from the mane and tail. The breathing was stertorous and accompanied by a rusty discharge from both nostrils. There was extensive

œdema of the pendulous parts and limbs, cording of the lymphatics and adjacent glands, great mental depression, movements being performed with extreme sluggishness.

The appetite and body condition had been fairly well maintained. It was decided to destroy the animal.

Post-mortem examination disclosed a subcutaneous œdema, with excess of clear, serous fluid in the peritoneal cavity. The liver was greatly enlarged, weighing 38 lbs. (normal 11-12 lbs.). It bore several circumscribed greyish areas beneath the capsule, but no appearance of neoplastic enlargements.

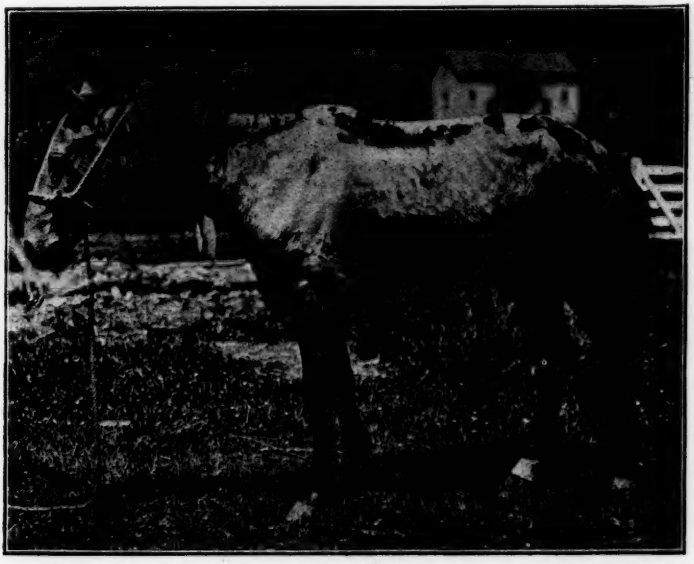

FIG. 1.—HODGKIN'S DISEASE.

Spleen slightly enlarged and very firm in texture.

Heart and lungs normal.

The most remarkable feature was a general enlargement of the lympatic glands throughout the body.

The portal lymphatic glands had increased to the size of two fists, and similar enlargements had occurred in relation to the pharyngeal, prescapular, and precrural, lymphatic glands. To a lesser degree the submaxillary, mesenteric—in fact, the whole of the lymphatic system—had shared in these changes.

The glands, when cut into, appeared firm, though a few were slightly

œdematous. There was no appearance of suppuration or other degenerative changes.

Numerous specimens of Sclerostomus tetracanthus were present in the cæcum.

The result of a blood examination resembled that of the previous occasion.

Sections of the lymphatic glands examined microscopically showed a hyperplasia of the cellular elements, and an increase in the gland stroma.

FIG. 2.—HODGKIN'S DISEASE.

The liver, examined in sections made from the grey-coloured portions, showed areas of fine infiltration and commencing fibrosis, the fibrous elements appearing to follow the course of the biliary canal.

Other areas appeared normal, apart from here and there an interlobular, fine-celled infiltration.

The accompanying photographs serve to illustrate the appearance of the animal in the final stages of the disease.

SPRING SURGERY.

A Castrating Knife and a Tourniquet Method for Umbilical Hernia

By C. P. HYNES, M.R.C.V.S.,
Lismore, Ireland.

Cutlery was " na poo " during the war, and it has a long way to go yet before it assumes its pre-war efficiency. The common or garden penknife went off lamentably, and so did our veterinary cutting instruments. The fine cutting edge when new was anything but a gilt-edged security, the temper of the " steel " uncertain, and good edge a rare and rapidly-vanishing possession. In a large castrating practice, when one has often to do forty or fifty strong September calves, as the nursery rhyme says, " all in a row," day in and day out, one soon discovered the ordinary castrating knife to be a delusion, a snare and a mockery, especially the war or W.D. specimen. In such cases a perfect armoury of these weapons had to be carried, or otherwise a professional scissors-grinder hired for the day.

Cutting the white fibrous tunic appears to mark " paid " to the edge of a bad-tempered castrating knife in a remarkably short time. In desperation I tried an experiment, and have been clapping myself on the back ever since. I possessed a razor called the " Durham Duplex." It is a safety razor, which functions similarly to an ordinary razor, and shaves flat on the face instead of at a bad cutting angle, like most other safeties (No ! I am not a barber or a razor vendor.) The business-end of this article consists of a shaving and a sharpening attachment. It is this sharpening attachment, with blade *in situ*, that makes an excellent castrating knife after removal of the long bone handle. It gives a beautiful hardy edge, cutting to a definite depth, with a rounded safety back for handling. It can be dropped or flung into your bucket of disinfectant umpteen hundred times and will always fall on its feet and come up smiling. It is easily found when poking about in an opaque disinfecting solution, and does not exhibit a tendency to cut you to the bone first time it gets you bending. It comes asunder in a twinkling for drying or cleaning, and the blade, which is double-edged, can be instantly reversed. Blades cost about 5s. per dozen, and a dozen blades should last a lifetime (probably several lifetimes in this most disthressful country). The knife, I find, is also extremely handy for making primary incisions commencing an operation. The cutting edge is always beautifully keen, and the blade can be stropped or honed again and again. I have done as many as forty consecutive castrations without having to re-sharpen the blade.

I believe this razor can be obtained at any reputable cutler's or hardware establishment. The name is the "Durham Duplex." It is manufactured in Sheffield.

Umbilical hernia is often encountered in colts during the castration season, and I have repeatedly, with no ill-effects, done the dual operation—castration and removal of hernia—at one casting. It saves re-casting and another operation, and it pleases your client, even though you do charge him double.

I have long ago discarded the usual clam or clamp method for the cure of this abnormality. The exact pressure one exerts by the clamp, mechanical or otherwise, is always more or less a matter of chance and guesswork One often goes away with an uncomfortable feeling, thinking "Did I squeeze it enough?" or "Did I squeeze it too much?" Sometimes it cuts too quickly, before the umbilical opening has time to close, with dire results, and at other times hangs on for a month or more, what time the wily drum-stick bacillus has a standing and pressing invitation to come into the parlour. I have scrapped the clam for the neater and more certain method of strangulation by rubber ligature. The method adopted is simple, effective, and more or less automatic in action. With the subject on its back, the hernia is returned and the skin sac pulled up in the ordinary way. Two needles are passed at right angles to one another close up to the abdominal opening and through the pulled up skin. I use ordinary light meat skewers, the pointed ends of which are afterwards cut off with a strong wire cutter. I find the ring end of the skewer helps the push through. Of course this cross-needle method is as old as the hills, but the next step makes all the difference.

Above the cross-needles it was usually recommended to wind tightly strong whipcord. Now, you strangled the hernial sac all right with your whipcord, but as this substance began to cut through, the pressure naturally became less, as the cord did not adapt itself and follow up, as it were, the lessening space within its grip. Furthermore, the string got wet from disinfectant solution, etc., and stretched, consequently, although everything in the garden was lovely at the start, things didn't always finish up so satisfactorily. Again, too fierce a tightening at the start may have the same effect as too tight a clam.

Instead of string I use square or round indiarubber, as employed in the pernickety catapult of my youthful days The result I have found to be eminently satisfactory. Sometimes I use no needles at all, simply strangling the hernia sac with a few rounds of stretched rubber close up as possible to the abdominal opening.

The rubber is, of course, applied well stretched, and a uniform tension kept up. Five or six rounds are taken, and the ends of the

rubber, in its stretched state, are then crossed and tied with string. I find this better than knotting the rubber, which can also be done. By employment of this method too fierce a grip is avoided, and the danger of too rapid a cutting through, with possible eventration, is practically eliminated. The grip of the tensioned rubber is steady and even, automatically adapting itself to the lessening thickness within its grip, while dampness or wet has no effect on the ligature. A neat, plum-pudding-like arrangement is the result when the animal stands up, which gradually drops away in about fourteen or fifteen days. There is no thumb-twiddling with butterfly nuts or tug-of-war with whipcord or binder twine. Antiseptic washes are more easily applied, and in the case of the dual operation the colt can be turned out on the grass, where exercise and the green food tend to reduce swelling and limit infection.

BADLY FRACTURED LOWER JAW (HORSE).

By T. le B. REVINGTON, M.R.C.V.S.,
Government Veterinary Officer, Omaruru, South-West Africa.

Subject.—Strong black gelding, 15 hands, about 13 years. First seen December 16, 1921. Very poor condition. Inferior maxilla badly fractured. One piece of body and right ramus, with right canine and corner incisor nearly severed. It was fractured from right ramus and from body. Body of bone fractured through centre, antero-posteriorly. Fracture of body on right side of centre. Fracture of body at right side at its junction with ramus, this fracture meeting the fracture round the loose piece of bone. The alveolus of the right lateral incisor was split in two, exposing the root of this tooth at the lower end. The patient had been three days in this condition before treatment began. There was necrosis of the bone at the exposed places, and there was an extremely offensive odour from the wounds.

Treatment.—On December 17 the loose piece of bone was removed, together with the two teeth. The wound dressed with Tinct. Iod. B.P., bandaged, and left until 19th.

On December 19 the infected alveolus was curetted and the wounded surfaces thoroughly cleaned with methylated spirit. Just before bandaging 1 c.c. of Ac. Carbol. Pur. was injected into the alveolus with a hypodermic syringe. This tooth could not be removed without serious danger of extending the other fractures, so an attempt had to be made to save it. Prescribed soft feed only.

On December 21 the offensive odour was not so strong. Some more spicules of necrosed bone were removed and the wounded surfaces dressed with Sp. Vini Methyl. The fractured ends at the fracture in the centre were thoroughly cleaned. B.I.P. was freely applied, the

fractured ends brought into apposition, and the whole of the lower end of the jaw set in plaster.

On December 29 saw the case, but did not interfere with the dressings.

On January 4, 1922, removed dressings. Offensive odour still present and fractures not set, though the broken ends were not quite so loose. Satisfied that infection at fracture at centre of body had been overcome. Passed strong suture wire between centrals and laterals on both sides and through the bone ; set broken ends, and tightened wire by twisting it. Curetted alveolus lightly, and injected another 1 c.c. Ac. Carbol. Pur. The alveolus was becoming covered with granulations. Applied B.I.P. freely, after cleaning with methylated spirit, and re-bandaged with plaster.

On January 20 carried out same dressings, except for the injection of Ac. Carbol. into alveolus. Patient had recovered splendidly in condition, odour still perceptible, and bones not yet properly set. At this dressing passed another wire from outside of left corner incisor, then through bone behind the right central incisor, and brought it out in front between right central and right lateral. Tightened the wire by twisting the ends.

On February 1 repeated dressings of methylated spirit and B.I.P. Jaw firmer, and odour not so distinct.

On February 20 repeated dressings ; case greatly improved.

Early in March removed dressings and did not re-bandage. Instructed to irrigate mouth frequently with mild antiseptic. Towards the end of February and in early March small collections of pus developed in granular tissue over the alveolus that had been open, but these were not treated beyond squeezing out the pus occasionally.

Now, towards the end of March, horse is in excellent condition ; jaw firmly set ; firm, healthy granulations over alveolus ; no pus and no offensive odour. The horse was put to work a few days prior to the dressing on February 20, 1922, and the driver instructed to use only a snaffle bit and to use his reins very lightly. Horse discharged, except for the removal of the wires, on March 20, 1922.

This case is of interest in showing .—

1. That an open and infected alveolus does not always necessitate removal of the tooth that is involved.

2. That the germicidal action of B.I.P. allowed the plaster dressings to be left on for long intervals, during which time the jaw got a chance to set.

3. That even in the case of an aged horse firm union of fractures of the jaw-bone is possible. The horse now eats crushed maize.

POISONING OF CART HORSES BY FIELD WALLFLOWER (WILD RADISH).

By A. ELOIRE
(*de Caudry Nord*)

Our devastated country, whose land has remained uncultivated for several years, or cultivated in Soviet fashion by the inhabitants, supervised by the Boches, and only working for 4 sous a day, has become gradually fouled by parasitic plants mixing with the corn and encroaching on it more and more daily.

When the land has been neglected, and lacked cultivation for 15 months, we have had much trouble in making it produce anything whatever for the nourishment of man or beast.

I have already had occasion to report the death of pigs, fattened on cooked or coarse-ground rye, and containing a third or fourth part of corn cockle seeds (Agrostemina Githago); to-day it is the oats containing in the same proportions a third or a fourth of the seeds of the wild radish. The subjects affected have been carthorses consuming 6 to 7 kilogrammes (13 to 15 lbs.) of grain damaged by this foreign element. After some days of this régime, a horse is taken with dull colic; he paws, lies down flat and full length, gets up, goes down again in complete lateral decubitus, refuses food and drink, and is finally cured after a few subcutaneous injections of coliceine.

Next day another horse is taken in the same fashion, and is cured by like treatment. The following day fresh cases of colic, then two or three sick horses, and then four or five cases a day.

I am consulted, and I ask my client if a fresh food has been introduced into the rations. Finally I examine the rations and find oats containing a very large proportion of seeds of wild radish. I order discontinuance of this feed; one further horse is taken with colic, and then all recover. What remains of the oats is taken to the granary and sifted.

On returning home I consult a botanical work by Rodet and Baillet, and I find:—"Wild radish, described also under the name of field wallflower, is a harmful plant, very common on the edge of fields and highways, and, above all, in corn. Its seeds are bitter; when mixed in large quantity with cereal grain they seriously change the quality of the flour provided. Animals sometimes eat the seeds of this plant; they are not eager about it." Other authors are silent on the subject.—*Recueil de Medicine Veterinaire.*

[This weed is described by Bentham and Hooker under the name of Raphanus Raphanistrun—Wild Radish, Jointed or White Charlock. —Sub-Editor.] G.M.

OTITIS EXTERNA OF THE DOG.

By Dr. HANS HEUSSER.

Dr. Heusser comments on the frequency of this complaint in the dog, and states that one out of every ten dogs brought to the clinic of the University of Zurich was suffering from disease of the ear.

As causes of the malady he calls attention to the fact that in the horse and man the passage of the ear is only a wide and slightly bent tube, whereas in the dog it takes a sharp right-angled bend (Fig. 1). In the free pendant ear (Fig. 2) there is a cartilaginous plate situated at this bend in the wall of the medial passage, the antitragus or lower ear valve, which hangs over the opening into the ear (as the epiglottis

Fig. 1.—Section through the length of the normal left ear of a dog:—(*a*) Tragus; (*b*) Antitragus; (*c*) Drum of the ear.

does in the larynx) and closes the passage in the pendant ear like a valve. By drawing the external ear upwards and outwards the bend in the passage is straightened, and at the same time the cartilaginous plate goes back and a straight sound may be passed up to the drum of the ear (Fig. 3)

A further predisposing cause is the disposition of the external ear—the so-called "droop" or "hang" of it. Dogs with long, drooping ears are the chief sufferers, whereas short or crop-eared dogs are most free from the complaint. The otitis here is due to the fact that in long-eared dogs, as a result of pendency of the external ear, there is a

kinking and narrowing of its lumen and a contact of the internal skin surfaces, and in the movements of the animal a rubbing together or chafing of these places (Fig. 4).

Another cause of otitis mentioned by Möller and others is the hindrance to evaporation and circulation of air in pendant ears and the decomposition of wax and epithelial cells. As bearing on this, if the ears be bandaged down tightly not only is an inflammation of the ear not cured, but considerably worsened.

FIG. 2.

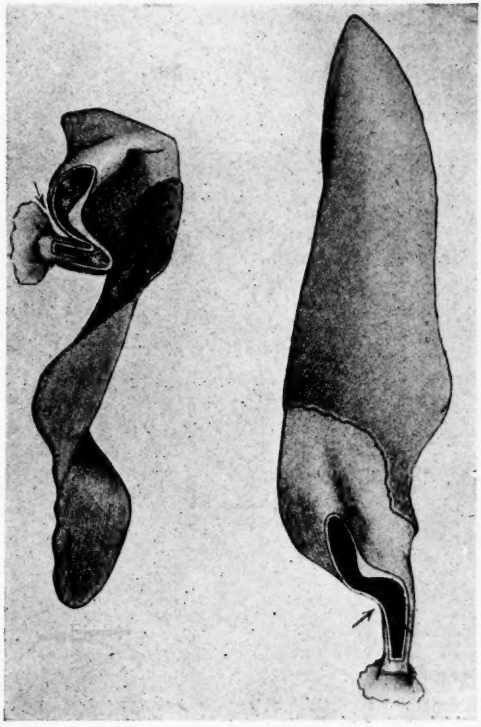

FIG. 3.

FIG. 2.—Right pendant ear of a dog in the natural position seen from the ventral surface. Half natural size. Tubus partly opened. Marked kinking of the same and ear valve.

FIG. 3.—Ear of the same dog stretched out, seen from the ventral side. Kinking of the tube greatly reduced; ear valve obliterated. Half natural size.

Long hair hinders the circulation of air more than short hair, and, as a result, it is very possible there is increased temperature inside the external ear and its passage, and in this way there is a favour-

able influence on the disease in long, woolly-haired subjects. Although only about 15 per cent. of all dogs are long haired, yet 30 per cent. of these were found to be the subjects of otitis.

As further factors a number of inflammatory conditions of the external skin—dermatitis, eczema, and exanthema—are prevalent in the dog. In 1917, out of 1,600 dogs brought to the clinic 229 had otitis and 253 skin diseases due to eczema. In most cases the skin disease

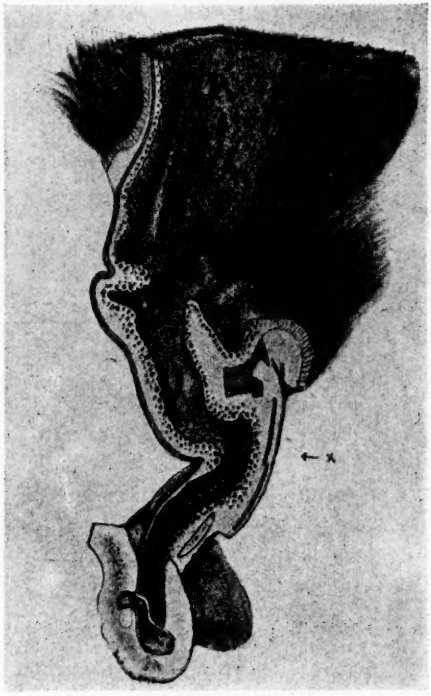

FIG. 4.—Chronic purulent otitis externa. Two-thirds natural size. The skin of the internal surface of the external ear shows several warty elevations It is greatly thickened, and on its cut surface shows numerous pinhead-sized cysts. × Bend of the ear canal.

was the cause of the otitis. Collections of dirt, skin scales, and ear wax, are doubtless frequently big factors in the development of otitis, and they are most prevalent in a dry, hot summer.

Chemical decompositions, bites, and distemper, give rise to catarrh of the ear. Otitis may be due to parasites (*dermatophagus auriculi felis* or *dermatocoptes cuniculi*). Cadiot describes a parasitic otitis

due to *symbiotes auricularum*. Foreign bodies in the ear are often so far in as not to be discernible, and comprise awns of grass and splinters of wood.

The *therapeutic measures* in otitis are in principle those applied to the treatment of eczema. First of all a thorough cleansing of the ear passage and external ear is necessary, which is effected by means of cotton wool and forceps, by which all skin débris is removed. Dry treatment produces better results than intensive moistening of the affected skin. The secretions are removed with dry lint or wool; if thready exudate is present a damp tampon of wool is best. Dry crusts and scabs must be softened by a mild, non-irritating ointment. Washing out the ear with a special syringe is seldom necessary. The passage in the dog, as a result of its bending, can only be incompletely cleansed mechanically, and, on the other hand, any fluid brought into the ear stagnates in the depths of the passage and can scarcely be completely removed. Eventually fat soluble fluids, such as spirit, ether or benzene, should be used to wipe out the ear, especially if dirty, sticky skin deposits are present. Afterwards dusting with a mild disinfectant powder, such as boric acid, is recommended. In cases of obstinate discharge, or where foreign bodies have penetrated the depths of the passage, splitting and clearing of the tubes is recommended. Under local anæsthesia or general narcosis the lower half of the ear being shaved, and after introduction of a sound into the passage, the skin, subcutis, parotis, and the auditory meatus, is split up to its most internal bony part.

After putting on the wound clamps, and eventual arrest of hœmorrhage, it is easy to survey and clear out the whole extent of the passage. A tampon fixed by a few sutures is then inserted and removed in two or three days. The wound is treated as an open one. The operation is well borne.

In general the treatment of otitis demands much attention, patience and thoroughness. In fresh cases our aim is effected in a short time, whilst the treatment of old and neglected cases is almost always useless.—*Wiener Tierärztliche Monatsschrift.* G. M.

POISONING BY ROBINIA PSEUDACACIA.

A cow ate some Robinia. She showed great restlessness, jerky convulsions of the whole body, no borborygmus, mucous membranes of the eyelids injected, great dilation of the pupils, quiet breathing, 18 per minute, pulse small, regular 40, heart stroke throbbing, skin reflex diminished. The history was that the patient had been tied to an acacia tree (robinias are really laburnums and not the acacias

of botanists—G.M.) and had eaten thereof. Treatment consisted of bleeding (5 quarts removed), an aloes ball, repeated fomentations of the hind quarters by pouring warm water on Prieznitz's poultices. After ten days the patient was quite right again.—*Zeitschrift fur Veterinarkunde.* G.M.

RUPTURE OF THE GASTROCNEMIUS TENDON IN A DOG

By FRANK CHAMBERS, O.B.E., M.R.C.V.S.,
Wolverhampton.

On September 15, 1921, I was asked to examine a ten months' old fox-terrier bitch that was said to have had her leg broken by being

Natural Cure of a Ruptured Gastrocnemius Tendon.

struck with a pellet from an air-gun. I found that the left gastrocnemius tendon was completely ruptured about one inch above its insertion into the os calcis. There was a punctured wound in the skin over the site of the rupture, but I could not find any pellet. The gap in the tendon was easily felt, and the leg was held in the position depicted in the plate illustrating a similar case which was described in The Veterinary Journal for March, 1921, by Major Hobday. The owner did not wish to incur the expense of an operation, especially as I did not feel justified in guaranteeing its success. I

advised him to keep the bitch as quiet as possible and see what nature would do.

On April 25 of this year the owner brought the bitch for me to see. She was walking sound, and was as active as any other terrier. The owner informed me that the bitch carried the leg for six weeks after I had seen her, and then began to put it to the ground. There is a very slight thickening over the seat of the rupture

The accompanying photograph was taken on April 25, and shows how well she stands. I regret that I did not take a photograph of her when I first saw the case, but I never expected to see such an excellent recovery.

ABNORMAL DILATATION OF BLADDER IN DOG.

By LOUIS SEWELL, M.R.C.V.S.,
London.

THE subject was a crossbred terrier, male, aged 8-9 years, weight nearly 25 lbs. The general condition was very fair except that the abdomen was very distended.

This dog was brought to me on March 28, 1922, for advice. The history was that the abdomen had been increasing in size for the last two months, also that the dog could not retain its urine. No excessive thirst had been observed. Appetite good.

At first sight the case had every appearance of an advanced case of Ascites, and before touching the patient I had practically made up my mind on this. The temperature was taken and found to be normal. The heart was badly out of tone, but no fluid or any other abnormalities were discovered on auscultation. On manipulating the abdomen, a large quantity of fluid was found to be present, and the liver was considerably enlarged. I advised the owner to have the dog destroyed, and this was carried out with morphia and chloroform.

On making a post-mortem, I found that the bladder was enormously distended with fluid, and on slight pressure this escaped freely by way of the penis, thus showing that no obstruction was present. The bladder was punctured and the fluid collected and measured, the quantity being sixty ounces. The fluid was pale yellow in colour, and evidently a mixture of urine and serous material. The bladder wall was in no way inflamed ; on the contrary, it was inclined to be anæmic, no doubt from the undue tension. The consistency of the wall resembled in appearance that of an ordinary cyst, rather than the muscular appearance of a bladder.

The prostate gland was slightly enlarged. The kidneys showed signs of cirrhosis, but not advanced. The liver was extremely friable and there was no sign of dropsical fluid in the peritoneal cavity.

Abstracts and Translations.

TREATMENT OF EPIZOOTIC DIARRHŒA OF FOWLS.

By Dr. BRU.

Under this clinical name of epizootic diarrhœa of fowls we include diseases in which in certain rapid forms diarrhœa may be absent, cholera of fowls, a septicaemic affection due to the *ovoid bacterium*, white diarrhœa of chicks, attributed to the *bacillus pullorum* and which often co-exists with cholera of the adults, *avian typhus* (fowl typhoid of the United States), colibacillary infection often with severe and heavy iricidence whose casual agent similar to that of typhoid fever has been called by Moore *bacterium sanguinarium*.

During 1919 notably, these different maladies, and especially fowl cholera, have occurred as epidemics in several regions in France. In certain departments of the South more than half the flocks of fowls have been affected in a few weeks, and in several cases two-thirds or three-fourths of the effective. Pullets were more often affected than old birds, whilst chickens were relatively free.

Beginning in June these maladies take on an epidemic character and occasion serious losses during the summer months.

We have experimented with several methods of treatment and give here proved ones which have checked the ravages of contagion in two or three days and sometimes in 24 hours.

Preventive Treatment.—Immunisation by injections of anticholeric serum has not been practised and different other medications proposed have not been sufficient.

My father, M. A. Bru, veterinary surgeon of Candecoste (Lot-et-Garonne) tried the preventive treatment advised by Nocard, consisting of intra-muscular injection of carbolised water. The first experiment was carried out on a lot of eight strong young fowls of the Black Orpington breed, the only survivors out of thirty. A solution of 5 per cent.crystallised carbolic acid was injected in a dose of 5 cc. in the depth of the pectoral muscles on one side of the breast bone.

Almost immediately after injection three of these fowls collapsed and were dead in less than five minutes. The five others, although keeping up, were panting and beaks open as if in strong summer heat; half an hour after their state was normal and none died as a result. A second lot of ten head, representing a surviving quarter of a flock, were injected with a dose reduced to 4 cc. of the same solution. One only, the smallest, already ill, collapsed; cold douches revived it, but it remained in a comatose state for some hours. On the morrow it had recovered and remained with the nine others during the month which followed. The solution was therefore reduced to 3 per cent. :—

Crystallised carbolic acid	3 grammes
Distilled water	100 ,,

the dose injected, varying from 3 to 4 cc. according to size.

Several hundred birds have been injected and in every case the progress of the malady has been checked. One has not taken into account losses among birds gravely affected at the moment of injection and which died the same day. The greater part of the sick birds have been cured; carbolised injections have therefore an effect at once preventive and curative.

In 1920 this procedure applied at the beginning of summer checked the birth of the malady and the rate of its success was at least 95 per cent. Subjects treated remained free until winter when the disease, as a rule dies, out naturally. Turkeys injected with 4 or 5 cc. did not benefit, and in the hundred birds inoculated by M. A. Bru the progress of the malady was not stayed. Turkeys, too, seemed to be more susceptible to intoxication by carbolic acid than fowls.

Shortly, this method of preventive treatment has the following advantages :—It is effective, economic, simple and rapidly executed. A 20 cc. syringe, when filled, serves to inoculate successfully six birds, which are set at liberty immediately afterwards.

Curative Treatment.—We always insist on isolation of sick birds and disinfection of the neighbourhood.

The following formula has given excellent results, especially in white diarrhœa of chicks and ducklings :—

Salol	4 gr.
Benzonaphthol	2 ,,
Grey cinchona powder	125 ,,
Green bone powder	125 ,,

A good spoonful (2½ drachms) for ten fowls, a teaspoonful for ten chicks or ducklings in the morning ration.

Other remedies used were intestinal antiseptics insoluble, but twice as active in the intestine, salol salicylic acid and phenol, benzonaphthol as benzoic acid and naphthol all very active substances in the treatment of infectious diarrhœa. (2) Astringents : Grey cinchona, which is least rich in alkaloids and most potent in astringents owing to its quinotannic acid which is the tannin of the cinchona bark. Grey quinine is cheaper than the other kind. (3) As tonics : Quinine and green bone powder.

Water must be frequently renewed and three drops of liquid carbolic acid or lysol added to each litre put down. Disinfection ought not to be limited to the locality. The birds themselves should be sprinkled once daily in the fowl house with carbolised water 50 per 1,000.—*Revue Vétérinaire.* G. M.

LES RECHERCHES MYCOLOGIQUES EN MÉDECINE VÉTÉRINAIRE. [Mycological Research in Veterinary Medicine.]—*Bull. Soc. Myc. de France*, xxxvii, 2, pp. 99–103, 1921.

THE War Minister installed in 1920, at 8, Avenue de Ségur, Paris, a laboratory for veterinary research for the Army, which has for its particular object the study of contagious and parasitic diseases of the horse, their prevention and cure. The author calls attention to several diseases of fungoid origin as being deserving of further study. Some of them are common to man and the horse, and are thus important from the point of view of comparative pathology. From the purely mycological standpoint their full life-history and relations are in need of further investigation. The skin diseases, of which ringworm is a type, due to *Achorion gypseum, Microsporon lanosum, M. equinum, Triciphyton gypseum, T. equinum, T. gypseum granulatum*, and others, are of interest to mycologists as their perfect stages, usually believed to be probably of the Gymnoascaceous type, are not known, nor under what conditions they can occur in nature as saprophytes. Sporotrichosis, due to *Sporotrichum Beurmani*, is perhaps transmissable from the horse to man by contact. Epizootic Lymphangitis, the causal organism of which is a *Cryptococcus*, which in culture has given indications of a mycelial development, is worthy of much more detailed mycological study. Then there is the group of forms variously known as *Streptothrix, Actinomyces, Discomyces, Nocardia, Oospora, Cladothrix*, etc., which are in a most regrettable state of confusion as regards their nomenclature. Here again some are common to animals and man,

It would also be of great practical value to determine the identity of the numerous fungi affecting fodder and causing alterations which may lead to intoxication. The chemical changes they bring about should be of particular interest.—(*Review of Applied Mycology*, March, 1922).

ON CURING CANKER.

By H. VOUTOBEL, Veterinary Surgeon,
Ruti (Zurich).

IN the late summer of this year I received a request from Mr. G. S. to treat a horse with a bad frog. The near hind foot was slightly affected with canker in its early stages. My hope to bring the case to a favourable termination quickly was quite upset. In spite of the known treatment, such as tincture of iodine, sulphate of copper, formalin, etc., and complete removal of the ailing tissues, the disease quickly spread further. The malady in the course of a few weeks had attacked all four feet and extended from the base of the frog to its point and out from the bars. Protection of the inflamed and sprouting areas, and pressure with suitable shoes, seemed useless. The coronets

began to swell and discharge, the so-called chestnuts fell off, and left bare discharging places. This phase of the ailment caused me to think that the disease eventually depended on a virus circulating in the blood whose toxin caused the specific disease of the matrix of the hoof. This view was strengthened by reading a communication by Prossignol in the *Bulletin de la Société de Méd. Vétérinaire*, in which he comments on the possibility of there being a connection between bedding on sawdust and the affection, and Vallé recommends atoxyl as a remedy; also in my case sawdust had been used as bedding. Internal administration of doses of arsenic proved valueless. I now injected into the vanner subcutaneously atoxyl 4 in 40 in sterile solution. Locally I applied tincture of iodine and copper sulphate, together with wood charcoal. The tincture of iodine easily penetrated into all the crevices. Change of the litter had been done at the beginning. About eight days after the first injection the ailment appeared to come to a standstill. This was especially noticeable in the swollen coronets. The secretion disappeared. In the course of five weeks I made four injections as previously. Absorption took place without any complications. The last two doses prescribed were of sodium arsenite. The horse worked lightly each day. Complete cure had occurred at the last injection, but this was given to prevent a relapse. I recommend further trials with atoxyl in this disease.—*Swiss Veterinary Journal.*

G. M.

[Most of us at some time or other have failed with canker cases. The above treatment seems worthy of trial, and we shall be glad to have reports of any cases treated with atoxyl.—SUB-EDITOR.

IS FOOT AND MOUTH DISEASE CONTAGIOUS FROM ANIMALS TO MAN?

BY A. ELOIRE, VETERINARY SURGEON,
Caudry.

1. IN 1878, when I first started at Capelle, a shoeing smith to the constabulary, who resorted each afternoon to the café to play picquet, contracted a stomach affection which obliged him, under doctor's orders, to go on a diet of milk. Under this *régime* he drank three or four large glasses of milk each evening at the café.

One day the dairyman found that he had foot-and-mouth disease in his cows. He hesitated and wavered, and finally did the simplest thing, which was nothing. He continued to furnish the milk to the proprietor of the café without warning either him or me. It was, and still is, slightly the rule in the grass country, and elsewhere, only to make a declaration of contagious disease when an animal is *in extremis*. My shoeing smith contracted aphthous fever, and took to his bed for

three or four days with intense fever and his mouth full of aphthæ. Dr. C., who attended him, assured me of the fact, and naturally no control of the malady was carried out. What must be done under similar circumstances? I ask you: Who is the practitioner at the commencement of his career in life that would have the audacity to propose a similar inoculation in the cow of one of his clients? There is quite a train of impossibilities which militate in favour of cruel scientific uncertainty.

2. Twenty years later the wife of one of my good friends told me that she also had been taken with fever and illness for some days, followed by a beautiful aphthous eruption in the mouth, as a result of consuming unboiled milk provided by a neighbour whose cows were affected with foot-and-mouth disease.

3. Later a farmer, who was doctoring the claws of his cattle, contracted aphthous fever.

4. Again, a bottle-fed child contracted aphthous stomatitis through receiving harmful milk, not boiled, provided from a herd affected with foot-and-mouth disease. I could lengthen the series of examples, *not controlled*, I quite sincerely admit, which during fifteen years of practice have been confided to me from one source and another.

Is there a practitioner who dare advise in an industrial dairy to give skimmed milk to young pigs and calves, without it being boiled previously, when foot-and-mouth disease is prevalent in the dairyman's area?

Or how can one admit *a priori* that aphthous fever, contagious by its virus in skim milk, given to pigs, remains absolutely harmless when given to another omnivorous animal, viz., *man?*

I know that in man there are quite a numerous series of inflammatory *stomatites* without counting mercurialism and others, but I maintain that there must and does exist a stomatitis acquired from the virus of bovine aphthæ. I am prepared to admit that contagion from the virus is by no means the rule in man, since certain bovines are refractory to it, but that all *mankind*, large or small, male or female, are refractory to it is a truth which up to the present has not been demonstrated at all.—*Recueil de Méd. Vétérinaire.* G. M.

FOOT AND MOUTH DISEASE IS NOT TRANSMISSIBLE TO MAN; HUMAN *APHTHOUS STOMATITIS* IS NOT TRANSMISSIBLE TO BOVINES.

By CH. LEBAILLY.

M. LEBAILLY states that doctors and veterinarians in Germany from experience gained in 1834 consider that foot and mouth disease is transmitted from animals to man by the medium of milk.

Lebailly has not encountered any case of aphthous fever among the numerous people who were in contact with sick animals. Aphthous eruptions in man have been noticed in Normandy, where foot and mouth was absent. A carrier with severe aphthous eruption for several years, received his milk from a single farm where the cows were quite free from foot and mouth.

Experiments to try to transmit human aphthous stomatitis to cattle by subcutaneous inoculation have been negative.

The same negative results have occurred from intramuscular inoculation and a combination of subcutaneous inoculation and contact of the aphthous virus for five minutes, with the internal face of the cheek which only produced slight erosions. From these observations Lebailly considers that bovine foot and mouth disease and aphthous stomatitis of man are absolutely distinct maladies and that the former cannot be transmitted experimentally to man nor the latter to cattle.—*Revue Gén. de Méd. Vet.*

BLOOD TRANSFUSIONS.

By Professor G. MOUSSU.
Veterinary School, Alfort, Paris.

For some years blood transfusions have been the vogue in hæmotherapy and plasmotherapy.

Blood transfusions were of great service and saved not a few bloodless wounded in the Great War, and their practice enabled many interesting and indispensable facts to be tabled in connection with the procedure.

The greatest progress was made when it was found that citrated blood, *i.e.*, non-coagulated blood, could be used without danger in transfusion. At the same time, although it is of real benefit to the recipient, it is important that the operation be carried out according to very strict rules. It is found, for example, that there is always *incompatibility* between the blood of different species of subjects. That is to say that not only are transfusions executed under these conditions useless, but injurious, and frequently rapidly dangerous.

There is *compatibility* between the bloods of subjects of the same species. That is to say that mixtures can be made without physico-chemical reaction and with the preservation of the qualities of the primitive liquids; but there are also degrees in the compatibility and the maximum of this compatibility, that is to say, its possible utility is obtained with the degree of consanguinity or of parentage in the narrowest sense (transfusions between twins, brothers, etc.),

Transfusion between subjects of the same family is physiologically better than transfusion between subjects not of the same parents; and

the more the differentiation of types is accentuated, the more the compatibility diminishes. Transfusions between men, among subjects of the same type of the white race, for example, can be practised with all chances of useful results ; these results become doubtful when the types of the same race are very different, and experience has shown that it is dangerous when transfusions are carried out between white and black or yellow races.

It is of the highest physiological importance that the bloods mixed should be of identical, or very near, composition. If they are not at the time, or soon after transfusion, veritable physico-chemical reactions are produced which lead to dislocations in the circulating liquid, that is to say, the blood plasma, globular agglutinations, vascular coagulations, and troubles of every degree.

When the blood transfused is not tolerated it produces in the days following a febrile, abnormal state which has a connection with the destruction of the foreign albumens introduced into the vascular apparatus of the person transfused. The globules of the experimental blood carried are destroyed, and disappear in about four days.

When compatibility between giver and receiver is perfect there is rapid and almost instantaneous cure of the patient asphyxiated by oxide of carbon. Intoxication by oxide of carbon renders the red globules incapable of fixing the oxygen ; but as a result of transfusions the dyspnœa, by lack of fixation and intra-organic diffusion of respiratory oxygen, disappears quickly, and the mucosæ regain their colour. Rapid cure can then be explained by the normal functioning of the red globules transfused. It appears that the life of the globule can be prolonged for a month, that is approximately their normal life (the red globule is born, evolves and dies in quite a short time).

For the rest, there remains the important question : In what conditions is transfusion clinically indicated ? In hæmorrhages the question is beyond dispute ; in intoxications by carbonic oxide the fact is proved ; in maladies causing blood and globular alterations it seems to be indicated, always provided there is a transfusion of living blood which is compatible and has healthy globules.

As regards animals, the author suggests that in cases of hæmophilia the transfusion of compatible and living blood, or the intravenous injection of homologous serum in a big dose, may be expected to give better results than calcium, iron or arsenical salts, combined or not with subcutaneous injections of small doses of any serum.

In hæmoglobinuria of the horse, in the course of which there is at a given moment, and under influences badly established (dietetic and chills, etc.), a temporary state of modification of blood composition with globular fragility, globular destruction, hæmoglobinæmia, dimi-

nution of the capacity of fixation and diffusion of respiratory oxygen in the tissues, hæmoglobinuria, etc., there is room to ask whether compatible and massive blood transfusions (several litres perhaps), would not be better than any other medication to establish the colloidal equilibrium more or less disturbed by organic liquid media of the disease. In default of transfusion intravenous injections of massive doses of homologous serum should give good results. But it is evident that these injections could not supply the elements provided by the complete blood of transfusion which supplements right away the functions of the red globules which have been destroyed by the loss of their hæmoglobin.

When a hæmoglobinuric horse has fallen on its side it is in great danger, and the risk would not appear to be very great of bleeding it and transfusing immediately the same quantity of compatible normal blood, that is to say, reinjecting it at once through the same canula, with natural blood taken at the same time from another healthy, vigorous and well-conditioned horse.

In purpura hæmorrhagica of cattle the transfusion of blood might also be tried, and here there is no greater risk than by treatment with drugs; for the great majority of these cases end fatally.—*Recueil de Médécine Vétérinaire.* G. M.

Parliamentary Notes.

Cruelty to Animals Bill.

The Bill entitled Cruelty to Animals Bill, which was introduced in the House of Lords on March 7 by Lord Lambourne, has now been printed. The memorandum states that the object is to carry out the recommendations made by the Royal Commission on Vivisection and embodied in their report of March, 1912, including those contained in the reservation memorandum signed by Colonel Lockwood (now Lord Lambourne), Sir William Collins, and Dr. Wilson. There are eighteen clauses and a schedule :—

Clause 1 lays down that no person shall perform, on a living animal, any experiment except under the restrictions imposed by the Bill.

Clause 2 sets forth the restrictions :—

(*a*) That the experiment must be performed with a view to the advancement by new discovery of (1) physiological knowledge, or, (2) knowledge useful for saving or prolonging life or alleviating suffering.

(*b*) That the experiment may be made only under licence from the Secretary of State.

(*c*) That the animal must during the whole of the experiment be under the influence of an anæsthetic.

(*d*) The animal must be killed while under the influence of the anæsthetic.

(*e*) The experiment shall not be performed to illustrate lectures in medical schools, hospitals or elsewhere.

(*f*) It must not be performed for the purpose of obtaining manual skill.

(*g*) The substance known as urari, or curare, shall not be used. And

(*h*) An inspector shall be present throughout the experiment.

The section is not to apply to an animal whose brain has been completely destroyed ; but if this operation be performed by way of an experiment on any animal it shall be conducted in accordance with the provisions of the section so far as applicable.

Clause 3 enjoins that where pain supervenes on an experiment not calculated to give pain initially the restrictions already mentioned shall apply, except that it shall not be obligatory to give an anæsthetic for the experiment or to perform it in the presence of an inspector, or to kill the animal until pain occurs. The animal must then be painlessly killed, and it is required that all places where such experiments take place shall be frequently visited by an inspector.

Clause 4 declares that there shall not be applied to the eye of any animal by way of experiment any matter or substance calculated to give pain for the purpose of absorption through the conjunctival membrane or through the cornea.

Clause 5 prohibits the public exhibition of painful experiments.

Clause 6 states the terms of grant of licence for experiments. The Minister may insert a provision that the place is to be registered as he may direct by general or special order. A licence shall not authorise the performance of more than one experiment, or one series of not more than six connected and consecutive experiments. There shall be specified on every licence the nature of the experiment or experiments to be performed, and the time and place shall also be stated. Every licence shall be granted by the Secretary of State on his own personal responsibility, and he shall not delegate the granting to any other person ; and in making the grant he shall pay special regard to the applicant's reputation for humaneness. A licence may be revoked or suspended at any time.

Clause 7 enables the Secretary of State to refer applications for licences to an advisory body selected by him from lists of persons nominated by the Royal Society and the Royal Colleges of Physicians and Surgeons in London. In the event of the Bill applying to Ireland,

the Royal Irish Academy and the Royal Colleges of Physicians and Surgeons in Dublin are to be substitued for the authorities named.

Clause 8 provides that in the appointment of inspectors special regard shall be had to the reputation of the persons in question for humaneness.

Clause 9 allows the powers of granting a licence to be exercised by an order by any judge of the High Court, or in Scotland of the Court of Sessions, in a case where the judge deems it essential for the purposes of justice in a criminal case.

Clause 10 requires reports of experiments to be made, and Clause 11 provides that reports shall be open to inspection by the public.

Clause 12 makes the maximum penalty for an offence against the Act, on summary conviction in the case of a first offender, a fine not exceeding £50, and in the case of a second or subsequent offence, a fine not exceeding £100, or imprisonment for a period not exceeding three months.

Clause 13 permits right of entry to the police to a place where a justice on information on oath has ground for believing that experiments contrary to the Act are being performed.

Clause 14 permits of a prosecution at any time within a period of two years from the time when the matter of complaint arose, provided that the prosecutor deposit £50 as security for costs.

Clause 15 allows of appeal to Quarter Sessions in England.

Clause 16 would, on application of the Act to Ireland, construe Secretary of State to mean the Chief Secretary.

Clause 17 deals with definitions. Animal, under this Act, does not include invertebrate animals; anæsthetic means a general anæsthetic of the nature of a respirable drug or gas; experiment includes all processes for obtaining serums or vaccines for commercial or other purposes.

Clause 18 would repeal the Cruelty to Animals Act, 1876.—(*British Medical Journal*).

PROGRAMME OF THE 11TH CONGRESS OF INTERNATIONAL COMPARATIVE PATHOLOGY, TO BE HELD AT ROME, COMMENCING ON SEPTEMBER 20, 1922.

1. Experimental grafting.
2. The regeneration of nerves in experimental pathology, in nervous diseases and in injuries sustained in war.
3. Vitality of animal and vegetable parasites.
4. The present state of the cancer problem. The direction it is desirable research should take.

5. Vitamines and deficiency diseases of man and animals.
6. Filterable virus diseases.
7. Foot and mouth disease.
8. Rinderpest.
9. Fowl cholera.
10. Bee disease.
11. Silkworm disease.
12. Bacteriophages.
13. Bacterial tumours of plants.
14. Piroplasmoses.
15. Symbiosis and plant parasites.
16. Life history and evolution of the dibothyrocephalus latus.
17. ,, ,, ascarides.
18. ,, ,, ankylostomiosis.
19. Scabies of man and animals.
20. Diaspis pentagona and prospartella berlesei.
21. Grape vine disease.

Other subjects will be considered if submitted to the Executive Committee.

INTERNATIONAL HORSE SHOW.

A SPLENDID list of entries, in many classes far above the average in numbers, has been received for the eleventh International Horse Show, which will be held at Olympia, London, from Saturday, June 17, to Saturday, June 24, and the directors confidently believe that this will be the most magnificent assemblage of horses on record. Jumping over the course by the best trained horses in the world takes place every afternoon and evening. The building, both as regards scenery and flowers, will be superbly adorned, and the band of the Royal Artillery will play.

The Gala Performance is fixed for Monday afternoon, June 19, when it is hoped that their Majesties the King and Queen will be present to witness the jumping for the King George V Gold Cup, a trophy now held by Lieut.-Col. Geoffrey Brooke, 16th Lancers. "Combined Training," the horse on which he won the prize for England for the first time, has again been entered, and, in addition to many other British horses, it is known that officers in the Belgian, Dutch, French, Italian, and Spanish, Armies are arranging to compete.

On the Thursday afternoon teams of three officers from the various armies will compete for the Prince of Wales Cup, also now held by Britain. The Coaching Club visit the Olympia arena on Wednesday afternoon, and the costers' donkeys will be judged on Thursday evening.

A feature of each performance will be varied and novel riding displays by 25 picked men of the Metropolitan Police Mounted Branch Training Establishment. This is by permission of General Sir William Horwood, K.C.B., D.S.O., and will be under the direction of Colonel Percy Laurie, D.S.O. The displays include a Wild West show, plaiting the maypole and trick riding, all going to demonstrate the wonderful training of London policemen.

Personal.

TESTIMONIAL TO PROF. PERRONCITO, TURIN.

THE Committee for the Promotion of the Public Testimonial to Prof. Edoardo Perroncito, of Turin, have issued the following circular:

To honour those who have dedicated their lives to science, and who, by their studies, observations and researches, have benefited humanity, is a duty in which none of us ought to fail, in order to show the gratitude and admiration which we all feel towards them.

To this duty we render obedience in honouring Edoardo Perroncito, who has brought light where once was darkness and mystery. It was he who demonstrated for the first time the parasitic nature of the anæmia of miners, that terrible disease which struck down inexorably the workers of the St. Gothard Tunnel, thus contributing to save from certain death numberless innocent victims of labour. That is sufficient to give him the right to be numbered among the benefactors of mankind.

Furthermore, numerous studies on the parasites of man and animals and their infective and contagious diseases have made him celebrated throughout the whole scientific world, as is attested by the honours of which he has been considered worthy by almost every nation in the world, who have inscribed his name in the albums of numerous and renowned scientific academies and conferred on him honorary degrees.

He has now arrived, in accordance with the law, at the limit of his career as a teacher, which he has exercised for nearly fifty years, leaving ineffaceable traces in the field of parasitology, as in that of comparative pathology, to which he gave himself with so much ardour. It is in the highest degree fitting and due that all those who have known and appreciated him should unite in attesting to him their admiration and gratitude for what he has done as a scientist teacher by rendering him a tribute worthy of his work.

To this end a committee has been formed in Turin, where he has spent his working life and completed his favourite studies, and from Turin the Committee send an appeal to all scientists in the world,

to all his numerous pupils and colleagues, to all those who appreciate his high merit, to honour him.

Signed by the President, Prof. Perruchico Faelli, followed by the names of a committee of honour composed of nineteen representative Italian veterinary surgeons and twenty-seven of the best known veterinary surgeons in other parts of the world.

The Secretaries are Prof. C. Barile and Dr. D. Giovine, at Via Nizza, 52, Turin, to whom subscriptions should be sent.

Subscriptions from our English colleagues may be sent to Frederick Hobday, 165, Church Street, Kensington, London, the Secretary of the British Section of the International Congress of Comparative Pathology, by whom they will be acknowledged and forwarded.

THE annual dinner of the officers of the Royal Army Veterinary Corps will be held at the Hotel Cecil on Friday, June 16, 1922, at 8 p.m. Officers of the Militia, Territorial Army and temporary officers who served in the war are eligible to attend. Subscription: Subscribers, £1; non-subscribers, £1 15s. Would gentlemen desirous of attending kindly inform the Hon. Secretary, R.A.V.C. Dinner, Imperial House, Tothill Street, S.W.1.

NOTICES.

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